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(52) UK CL (Edition R)

A5R RGM RGP R201

(56) Documents Cited

GB 2243552 A

EP 0520930 A1

EP 0329038 A1

US 5344405 A

US 5290267 A

US 5242400 A

US 5104378 A

US 4973316 A

(58) Field of Search

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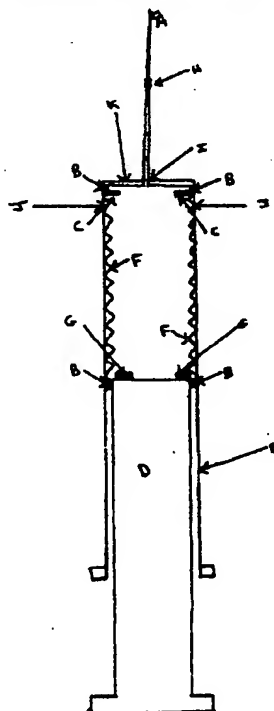
ONLINE:WPI,EPODOC

(54) Abstract Title

Single use syringe

(57) A single use syringe comprising a syringe body E having a base K, a plunger D disposed within said body, a needle connected to the base K and a spring F disposed within the syringe body to bias the plunger D away from the base K, the plunger and base having means G, e.g. magnets or interlocking mechanical means, for locking together of and withdrawal of the base K and plunger D into the syringe body E following an injection stroke. The needle has a slight bend near its tip at H to ensure that the needle cannot reemerge from port I after it has been withdrawn into syringe body E. This prevents needle stick injury after use of the syringe.

A.N.S.I. SYRINGE

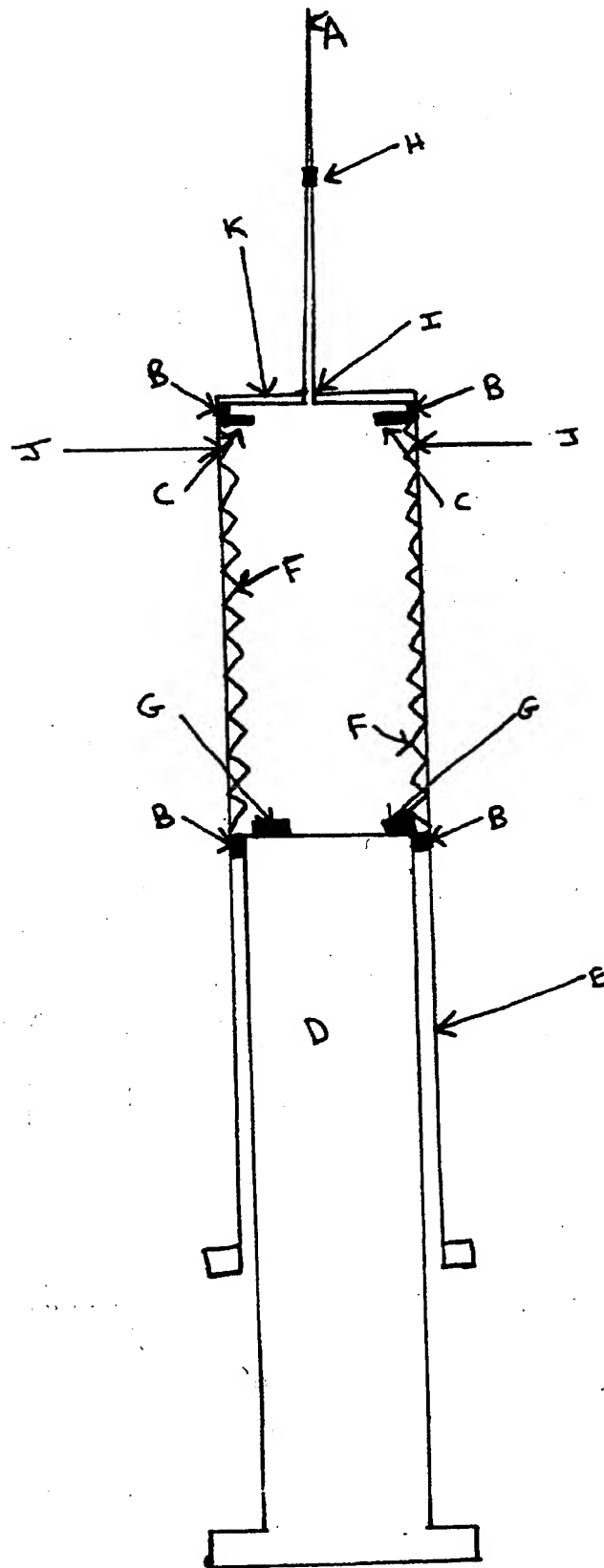


The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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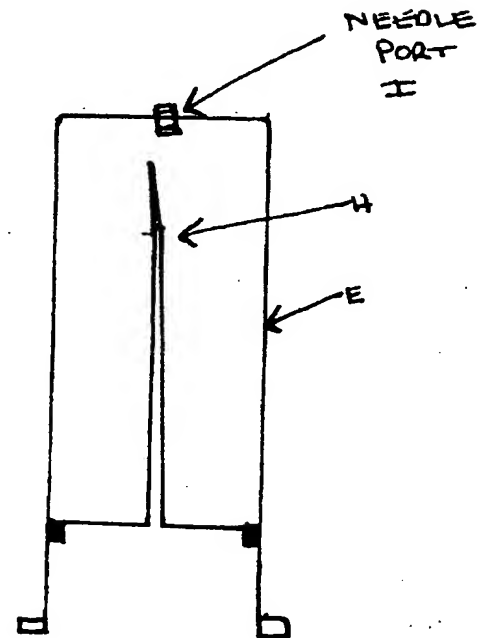
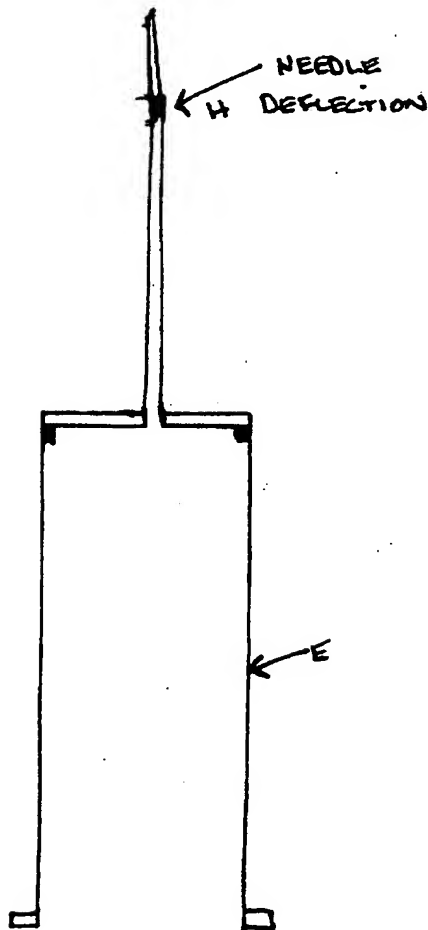
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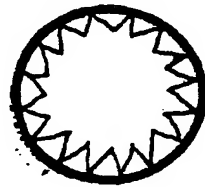
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A, N, S, I, SYRINGE



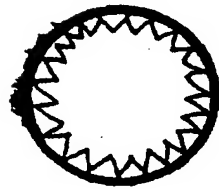
## INCORPORATED NEEDLE DEFLECTION

THIS SYSTEM WILL BE INCORPORATED IN THE NEEDLE AT MANUFACTURE AND WILL CONSIST OF A SLIGHT INBUILT DEFLECTION IN THE NEEDLE CONSTRUCTION PREVENTING THE NEEDLE FROM LEAVING THE SYRINGE BODY ONCE THE INJECTION HAS BEEN CARRIED OUT



NEEDLE LOCKING MECHANISM

NEEDLE MECHANISM  
INCORPORATING RUBBER  
SEAL



PLUNGER MECHANISM  
INCORPORATING RUBBER  
SEAL

THIS DEVICE WILL LOCK THE PLUNGER MECHANISM TO THE NEEDLE MECHANISM UPON FULL DEPRESSION OF THE PLUNGER BY MEANS OF MECHANICAL AND OR MAGNETIC CONNECTION THUS ALLOWING THE NEEDLE TO BE RETRACTED INTO THE SYRINGE BODY UPON OPERATION OF THE SPRING LOADING SYSTEM

**ANTI NEEDLE STICK INJURY SYRINGE - A, N, S, I SYRINGE**  
**OBJECTIVE CONCEPT**

1. Spring loaded needle recovery syringe
2. Total protection against needle stick injury
3. Fully automated mechanical needle recovery
4. Ideal for taking blood samples safely
5. Protection of public from discarded hypodermic needle's by drug user's
6. No requirement of user to retract needle as system is fully automated
7. Protection against needle being revised after recovery has taken place

## A, N, S, I SYRINGE OPERATIONAL EXPLANATION

Operator would submerge needle *A* within drug to be administered, by pushing plunger *D* to restricted level *J* and pulling the drug within syringe body *E* to required level and releasing air by visual means. At this stage there will be no tension on the spring loading system *F*. The needle *A* would then be inserted within the patient at which stage the operator would depress the syringe plunger *D* administering the drug to the patient, the plunger *D* would be fully depressed to the bottom of the syringe body *E* causing a compression of the spring loading system *F* and a connection between the needle mechanism *C* and the plunger locking mechanism *G* become locked together. When the pressure is released from the syringe plunger *D* the spring loading system *F* would become active and push the syringe plunger *D*. The spring loading system *F* would become active and push the syringe plunger *D* back up the syringe body *E* with the needle locking mechanism *C* and plunger locking mechanism *G* firmly fix to one another this would pull the needle within the syringe body *E* at which stage the needle can be regarded as safe as future depression of syringe plunger *D* would cause the needle to collide with the inner section of the syringe body base *K* due to the inbuilt needle deflection *H*.

**Key**

A = NEEDLE TIP

B = RUBBER SEALS

C = NEEDLE LOCKING MECHANISM

D = SYRINGE PLUNGER

E = SYRINGE BODY

F = SPRING LOADING SYSTEM

G = PLUNGER LOCKING MECHANISM

H = NEEDLE DEFLECTION

I = NEEDLE PORT

J = RESTRICTED LEVEL

K = SYRINGE BODY BASE

## CLAIMS

1. The invention relates to a fully automated needle recovery system within a syringe.
2. A syringe as claimed in claim 1 with a plastic syringe body and plastic syringe plunger (see drawings).
3. A syringe as claimed in claim 1 incorporating a spring loaded system of metal or plastic construction with interlocking mechanisms at the syringe body base and plunger base designed to lock tight together upon contact with one another.
4. A syringe as claimed in claim 2/1 and 2/2 incorporating a needle of metal construction fixed securely to the needle locking mechanism at the base of the syringe body.
5. A syringe as claimed in claim 2/2 and 2/3 incorporating a metal needle with a slight deflection at the needle end allowing the needle to pass into the syringe body but not leave the syringe body should the plunger be depressed after the syringe has been used.





Application No: GB 9820804.4  
Claims searched: 1-4

Examiner: Anwar Gilani  
Date of search: 25 January 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.R): A5R (RGM, RGP)  
Int CI (Ed.7): A61M 5/32  
Other: Online: WPI, EPODOC

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB2243552 A (TRANSFERTEC) whole document	1-3
X	EP0520930 A1 (GONZALEZ) whole document	1-3
X A	EP0329038 A1 (HABLEY MEDICAL TECHNOLOGY) whole document	X:1-3 A:4
X A	US5344405 (RICHARDS) col.7 l.59-col.8 l.22	1-3
A	US5290267 (ZIMMERMANN) figs. 3a and 3b	4
X A	US5242400 (BLAKE, III ET AL) col.3 l.10-32, col.4 l.42-col.5 l.44	X:1-3 A:4
X A	US5104378 (HABER ET AL) col.3 l.12-col.6 l.28	X:1-3 A:4
X	US4973316 (DYSARZ) whole document	1-3

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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